Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY

STATE COLLEGE, PA.

What is your title for this picture?

10 Cash awards will be given for the best.

(*See inside back cover for details*)

NOVEMBER
1935

MIRACLE COOKERY BY WIRE

A NEW ELECTRICAL WIZARDRY COMES TO THE RESCUE OF KITCHEN-TIRED WOMEN

WE women all know what it is to be "kitchen tired" —just sick of bending over a hot stove in a stuffy room, with not a moment we can really call our own!

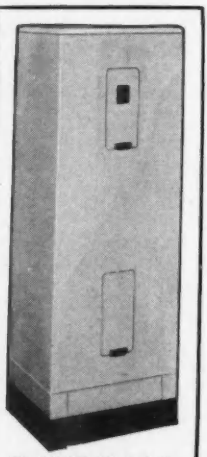
But we don't have to worry now—for Science has at last come to our rescue (as it always does) and brought not only kitchen freedom, but better tasting, better cooked meals—by wire!

It's a fact. Hotpoint has perfected an automatic electric range with a "Chef's Brain" that *never* makes mistakes. You can cook a full meal without being near the kitchen—or even in the house! The controlled electric embers of the new Calrod heating unit concentrate cooking heat where it belongs—on the cooking utensil—instead of diffusing it all over the kitchen. Women call this Miracle Cookery—and it is! Until you've tasted vegetables cooked electrically—rich, colorful and steeped in their own healthful juices—whole meals that have cooked themselves —you'll never appreciate what remarkable strides Science has made in the art of cooking—by wire!

Go to your electric company for a demonstration of a new Hotpoint Electric Range today. You'll be pleasantly surprised to learn how much a Hotpoint will save you—how little it costs, and how easy it is to buy.

SIX REASONS WHY HOTPOINT IS MIRACLE COOKERY

1. Accurate heat control assures cooking success.
2. Heat and moisture control in draftless oven.
3. "Chef's Brain" controls oven while you're away.
4. Hi-Speed Calrod Coils heat fast—last long.
5. "Electric Embers" do not heat up the kitchen.
6. Electric cookery is clean cookery. No soot.



The **VOGUE**—Hotpoint's new, modern style square-type water heater gives hot water every hour of the day or night without one minute's attention from you.

EDISON GENERAL ELECTRIC APPLIANCE CO., Inc.
5610 W. Taylor Street, Chicago, Illinois

ELECTRIC Hotpoint RANGES AND WATER HEATERS

November, 1935

Electricity on the Farm

Vol. 8, No. 11

IN THIS ISSUE

Making Plants Grow Faster

BY G. A. RIETZ

"The early bird gets the worm," and so likewise the advance-bearing crop can demand a better market price. Electric soil heating is the method now employed by a multitude of farmers to advance the growth of certain products. Turn to page 4 for details.

Water for Poultry in Cold Weather

BY T. E. HIENTON

The modern poultry water heating unit now available on the market can look back with pride to the pioneer unit and say: You gave me my start! An outline of the history and development, including experimental data accumulated for the benefit of poultrymen, is the aim of this article. See page 7.

Soft Water for the Farm Home

BY E. W. LEHMANN

Where cisterns are not available for the farm house supply of soft water, a water softener connected to the water supply system may be the only solution. Hard water causes inconveniences in household work and when soft water can be had for so little in the way of added layout, it certainly justifies the expenditure. This article is on page 9.

Cooking by Degrees

BY VERA B. MEACHAM

Cooking by degrees with an electric range eliminates much guesswork in food preparation. And it is not the only reason why the popularity of the electric range is ever increasing. The author gives a full accounting of each praiseworthy feature on page 11.

Some Interesting Results of Heating Brooder Floors

BY D. W. RICE

Progress depends on the person willing to prove that he has an idea worth establishing for general practice. On page 14 is described a means of heating brooder floors tested on the Higinbotham poultry farm with gratifying results.

Regular Monthly Features

Electrical Housekeeping, page 15; On the Air, page 18; Questions and Answers, page 20; What's New, page 22.

EDITORIAL

What pay does the housewife receive for pumping water by hand?

Of course she does not actually receive money for this, but the work she does is worth a definite amount, based on what it would cost to pump water by other means.

Computing the cost of man—or woman—power against electric power in pumping water has disclosed striking facts.

In the Maryville (Ohio) Electrification Experiment Station it was found that 13 families used 125,000 gallons of water a year. To pump that water by electricity cost $10.30.

If a person could pump 300 gallons of water an hour, a rate possible only for a short time by a strong man, it would require 416 hours to pump the same quantity. Man power at 25 cents an hour would have cost $104.00.

If human workers had been paid only the $10.30 cost of electricity they would have averaged less than 2½ cents an hour in wages. In addition, hand labor would have been required to carry the fresh water into the house and the waste water out.

Pumping water by hand is a mighty hard way to save money, especially where electric service is available.

THE PUBLISHERS

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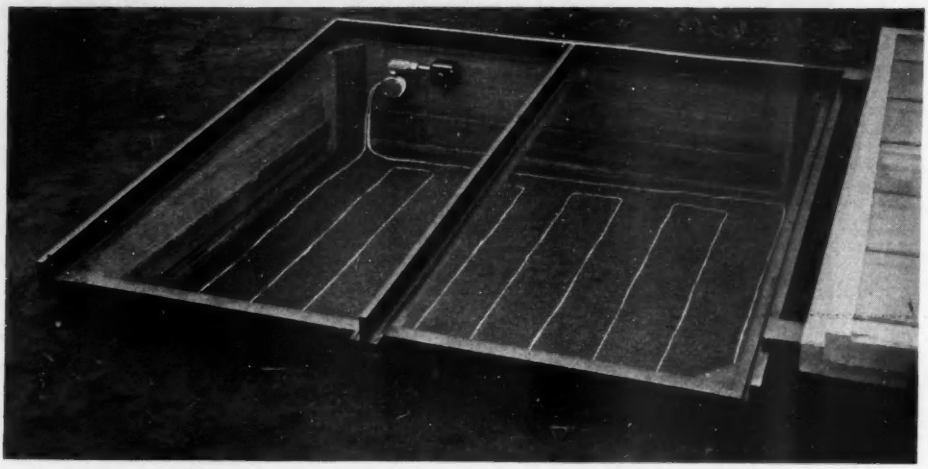
MAKING PLANTS GROW FASTER



Soil heating equipment installed in a two-sash hotbed; cable to be covered with several inches of rich soil.

By G. A. RIETZ

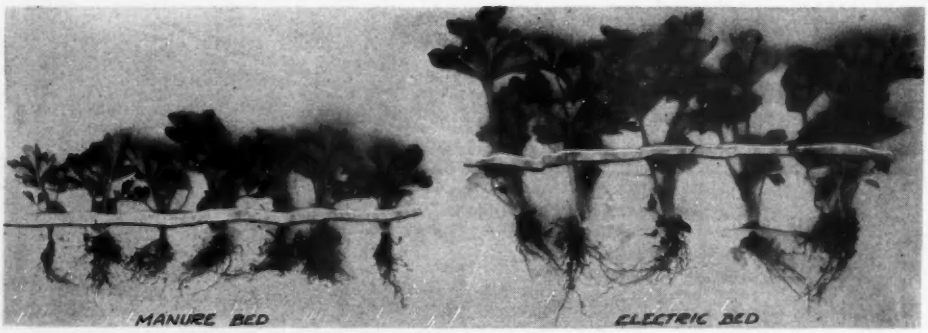
ELECTRIC soil heating for forcing the growth of vegetables and flowers is not an advantage that is limited to commercial gardeners and florists. It is available to the general farmer or to any small grower. While he may not grow these things for market or on a large scale, he at least appreciates the aid he can get in stocking his own table or a roadside stand.

No elaborate or expensive equipment is required and it is very easy to install and operate electrically heated beds. The soil is heated by electricity passing through a special cable looped back and forth through the dirt.

The temperature is regulated by a thermostat, which can be set to maintain any desired growing temperature. Once started it is not necessary to worry about the bed—merely water, ventilate and care for the growing plants. Having the even, ideal temperature, they will grow rapidly and vigorously.

Thermostatic Control of Temperature

The thermostat can be set for the ideal growing temperature of plants in the bed. If the plants are growing too rapidly or too slowly, the temperature can be adjusted to give the desired growth, by merely turning a knob. Thus the operator has positive control of plant growth. At the end of the



Comparison of celery plants grown under similar conditions, except from manure and electric hotbeds.

Electric hotbed in use. View showing thermostat.

growing season, the electric switch is opened—turning off the bed until it is to be used the next season.

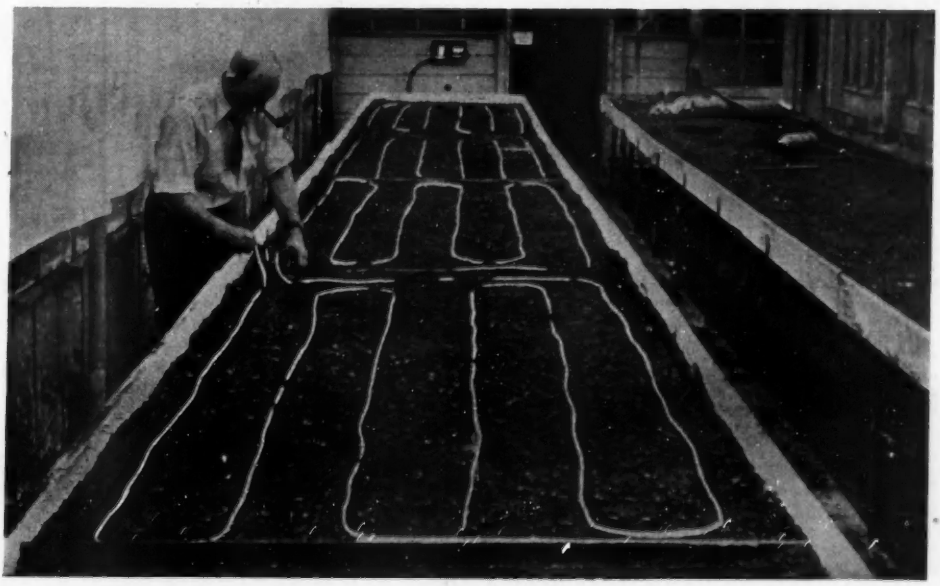
The cost of current for operating is low. The average consumption of power, during each 24 hours of operation, for hotbeds in northern climates varies from three-fourths to two kilowatt-hours for each sash three feet by six feet. The relatively low expense will be seen if you multiply your rate for current by the number of days you wish to operate the equipment.

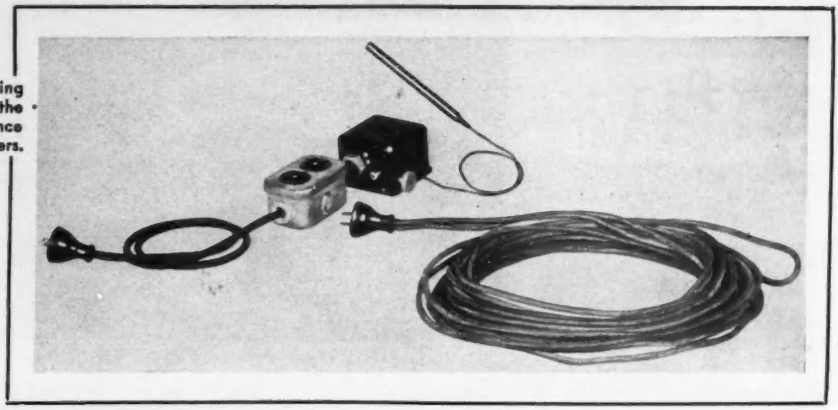
It is easily installed. The cable is distributed—looped back and forth—over the bottom of the bed in such a way that it is about three inches from the sides of the frame with about seven inches between turns. The cable is then covered with from three to six inches of rich soil, the surface of which should be nearly level. Or, the cable can be laid on the top of the soil; and some users report excellent results from this arrangement. The soil need not be changed for each growing period but can be used for three or four years. Thus all the drudgery of starting manure beds is eliminated. Merely close the switch a day or two before planting, to bring the bed to the desired temperature.

Commercial growers, who have been employing electric soil heating for several years, equip their beds and benches by purchasing the special cable and control thermostats in quantities. Competent electricians are hired to wire up the equipment in their beds.

Small users do not want to bother with special wiring in order to enjoy the benefits of electric soil heating. Therefore, this equipment did not become very popular with them until it was made available in a form which was very convenient to use. Manufacturers are now offering the equipment especially assembled for small users so that it is merely necessary to plug it into any convenient electrical outlet. Thus the advantages of electric soil heating

Soil heating equipment being installed in greenhouse benches.





Soil heating kit for the convenience of small users.

are conveniently available to the smallest user.

To reduce the family budget for vegetables or to have an independent supply of early plants, we have all wanted some trouble-free, dependable method of growing plants out of season. Electric soil heating gives us this, with many new advantages. Perhaps the best way to get an idea of possible accomplishments is to look at results commercial growers report.

For example, a Montana market gardener reports that he beat other growers to the market with celery by three weeks and made $200 in extra profit thereby.

A Missouri grower was able to bring sweet potatoes to market size ten days earlier than usual.

A florist in Ohio succeeded in getting lantanas to root three weeks earlier, and an Oregon grower was able to grow dwarf rose plants to a point where they were ready to ship in four weeks, as compared with a year required by the old method.

Produces Stronger Plants

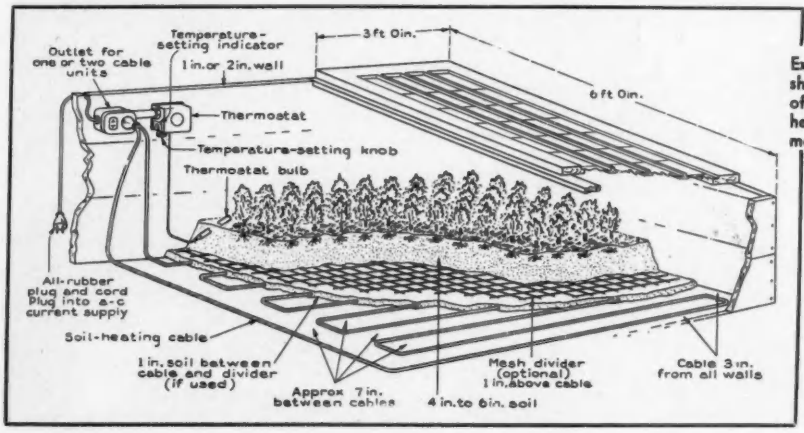
Nor is time the only thing gained. Electric soil heating produces larger, stronger plants.

A gardener in the State of Washington increased the length of daffodil stems from 18 inches to 25 inches. A New York grower obtained a 96-percent development of hydrangea roots as compared with a former 54 per cent, and an Oregon grower a growth of phlox of between 75 per cent and 90 per cent as compared with former results of from 10 to 15 per cent. And a Canadian florist, by installing soil-heating equipment in the benches, was able to lower the general temperature of his greenhouse to such an extent that he saved enough in fuel cost in one season to pay for the electric equipment.

Thus it will be seen that the benefit of electric soil heating do not depend on climate—every section of the country reports the same story of earlier growth, better plants and flowers.

Soil Heating Widely Used

Electric soil heating is not an experiment. Its practical value to the market gardener and the florist has been proved. Over 10,000 commercial gardeners and florists are using it. Now, the farmer who grows vegetables for his own use, and perhaps both vegetables and flowers for sale at roadside stands, is beginning to take it up. Amateur gardening is becoming one of our great hobbies and the use of electricity for stimulation of plant growth is finding wide acceptance. The equipment can be purchased at low cost, either entirely assembled for convenient use of small users or in its parts for assembly in the bed.


Outlet for one or two cable units
Temperature-setting indicator
1 in. or 2 in. wall
3 ft 0 in.
6 ft 0 in.
Thermostat
Temperature-setting knob
Thermostat bulb
All-rubber plug and cord Plug into a-c current supply
Soil-heating cable
1 in. soil between cable and divider (if used)
Approx 7 in. between cables
4 in. to 6 in. soil
Mesh divider (optional) 1 in. above cable
Cable 3 in. from all walls

Exploded view showing one way of using soil heating equipment.

WATER FOR POULTRY in COLD WEATHER

By T. E. HIENTON

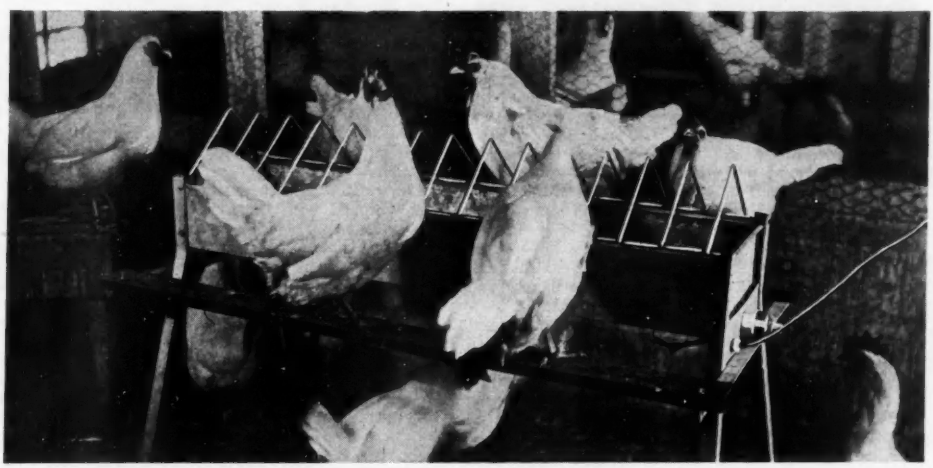
WATER is an essential of all animal life, and doubly so in the case of the hen. The hen's body consists of about 55 per cent water and her chief product, eggs, is nearly two-thirds water. It is of extreme importance, then, that a supply of water be available at all times to insure the health of the birds as well as to enable them to produce eggs.

Furnishing a constant supply of water is not particularly difficult but a real problem exists in preventing the water from freezing in the containers in many of the northern states during the winter. Various types of heaters have been utilized to prevent water from freezing but following experimental work with electric heaters and their consequent improvement, they have become very generally adopted where electric service is available.

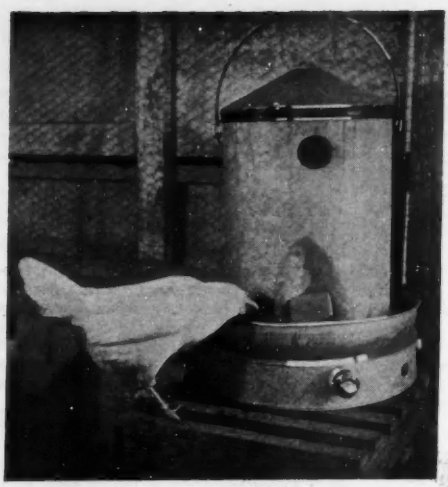
The history of the development of these heaters to their present state of perfection is a very interesting one. The first ones were merely electric lamps enclosed in a metal box beneath the bottom of a bucket or fountain, as seen in the home-made equipment, or placed in a watertight can filled with sand inside the container. An improvement of this method consisted of cutting a hole in the bottom of the bucket slightly larger than the diameter of a lamp and soldering an inverted can over this opening on the inside of the bucket as shown in one of the accompanying illustrations. This type was fairly efficient because nearly all of the heat from the lamp passed through the metal wall surrounding it into the water. However, leaks were found to develop in the bucket where the soldered joint had been made and this type was not altogether satisfactory for water leaking out of the bucket often dropped on the electrical connections to the lamp.

Interest in electric heaters resulted in one farmer using an ordinary curling iron with the point submerged in the water. This required careful watching for as the water level was lowered the iron was occasionally left entirely in the air. From this farmer's experience a manufacturer developed the first immersion heater for poultry by merely lengthening the heater rod of the curling iron so that it could rest on the bottom of a bucket.

The first experiments conducted by an agricultural experiment station were those at Oregon reported by Kable and Fox in 1927. In their tests three types of external heaters and four types of immersion heaters were employed. In the first type a circular fountain warmer, a ring heater and a strip heater were utilized. In the immersion type a soldering iron, coffee percolator element, tumbler heater and early type immersion poultry water heater were included. As a result of these tests it was reported in Circular 81 that "Heaters of 75 to 100 watts capacity are about right for warming



Hens avail themselves of constant supply of warm water during winter months from electrically heated three-heat trough.



Hen drinking from poultry drinking fountain heated by three-heat fountain warmer. A circular metal band extending from the top of the heater to the top of the trough aids in preventing freezing in the trough.

two gallons of water."

Tests were conducted in Indiana at the Purdue University agricultural experiment station by Prof. C. W. Carrick of the poultry husbandry department and the author in 1928, 1929 and 1930. Five varieties of the immersion type were tested, one of them the same as that included in the Oregon tests. A wide assortment of external heaters were tested including ring and strip heaters, carbon lamps, four sizes of fountain heaters and electrically heated troughs.

Results of the Purdue tests showed that an electric heater of more than 30 watts was required to prevent freezing in a 14-quart bucket at temperatures below 15 degrees F. They also showed that, where temperatures dropped below zero degrees F., a heater of more than 75 watts was required to prevent freezing in an 8-gallon fountain.

It was also reported that "Water in similar vessels froze at higher temperatures with external heaters than with immersion heaters of the same wattage." In other words, immersion heaters were more efficient than external heaters in transferring heat to the water. However, "External heaters equipped with three-heat switches used less total current than did immersion heaters having the same wattages as the former at high heats." The greater current consumption by immersion heaters than the 3-heat external type was due to the fact that during much of the weather, the latter type was operated at low heat while the immersion heater continued to use the full amount.

Shortly after the completion of the Purdue work, immersion heaters equipped with a thermostat appeared on the market. Likewise fountain warmers also were developed with thermostatic control. These types of heaters insure economical operation since in mild freezing weather very little electricity is used as compared with severe freezing weather.

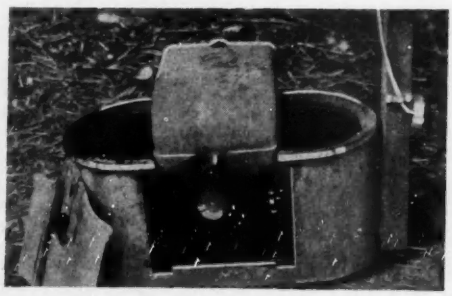
During the past two winters six immersion heaters equipped with thermostats have been used on the Purdue University experimental farm near Bedford, Indiana, to heat the water for 800 laying pullets and hens there. Each heater is used in a 14-quart bucket. During the first winter from December 27 until March 16, 220 kilowatt-hours were used, or less than one half kilowatt-hour per day per heater during the coldest part of the winter. During the past winter from December 17 until March 18, a total of 196 kilowatt-hours were used, or slightly more than one-third per heater per day.

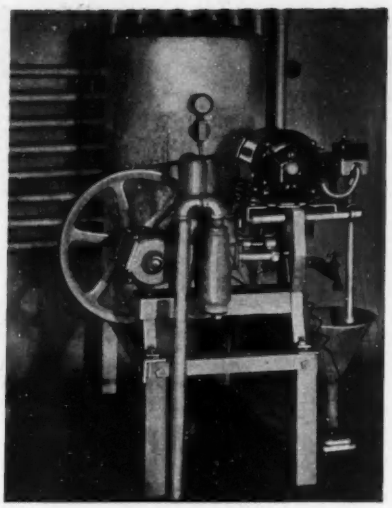
The cost of electricity for heating water on this

(*Continued on page* 19)

Right: Immersion heater controlled by self contained thermostat has proven very practical for heating water for poultry in open buckets and pans.

Below: Home-made electrically heated poultry drinking fountain on farm of G. E. Grunewald, Blairstown, Iowa. The lamp was installed by the owner to prevent freezing of water in the fountain before commercial heaters were available.





A modern water system is necessary before a water softener can be installed.

SOFT WATER for the FARM HOME

By E. W. LEHMANN

IT has been estimated that at least seventy pounds of soap are wasted by every Illinois family of five people using water of average hardness in the state. Another disadvantage of hard water for laundry work is the curd or scum which is formed and sticks to the clothes that are being washed. Also the hard water scale that forms in a water heater results in wasted fuel, and hot water coils that are not properly cleaned are often burned out.

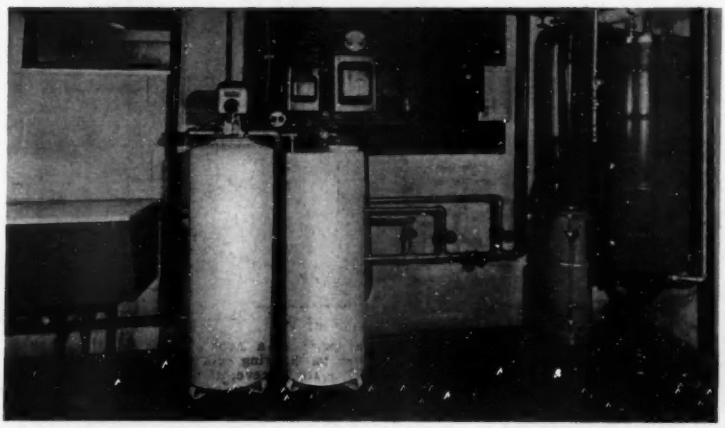
Methods of Providing Soft Water

There are two sources of soft water for the farm. One is rain water collected in a common cistern. The other is a water softener which may be used wherever there is a good supply of hard water under pressure.

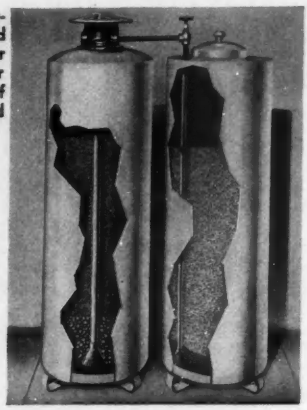
Where an independent soft water supply is provided by means of a cistern, it is desirable to have a separate pumping unit. Many homes in town and in the country were formerly equipped with an elevated storage tank and a hand-operated pump to provide the soft water supply under pressure. This type of equipment has been displaced by the small automatic electrically-operated units.

The cost of operating the electric motor for pumping water from a cistern is very slight. An experiment conducted by the University of Illinois indicated that less than one and one-half kilowatt hours were required to pump one thousand gallons of water. The average lift was approximately ten feet and the range of pressure was from ten to thirty-five pounds. Electricity is not only the ideal source of power because it can be made automatic in its operation, but it is less expensive than other kinds of power that may be used.

The modern water softener is no doubt the simplest solution to the problem of providing clean, safe, soft water for the home where there is an adequate well supply already under pressure. It contains a special softening material, commonly known as "Zeolite," which has the curious property of taking up lime, magnesium, and other minerals which cause hardness in the water and giving them up when soaked in salt. There are



A simple water softener installation will take the blues out of blue Monday.



Manually operated household water softener showing interior construction of the softener and brine tanks.

two kinds of this softening material at the present time. One is a natural processed sand and the other a manufactured synthetic product.

There are rather definite advantages in using the water softener in connection with a sanitary deep well supply as indicated by the fact that it is difficult to keep cistern water clean and fit for drinking purposes. Deep well supplies are usually sanitary and suitable for drinking.

If the water from a well is already pumped into the house, it is a very simple matter to connect it with a water softener. Only the water that is to be used for washing and other similar purposes would need to be softened. The water that goes to the sill cocks, toilets, etc., would come directly from the hard water system.

The softener requires attention at regular intervals. The usual practice is to add a certain amount of salt at least once a week, depending on the amount of soft water used and on the capacity of the softener, as well as the degree of hardness of the water that is being softened. To regenerate the common manually-operated softener, the water is shut off and four to six pounds of salt as needed or an equivalent amount of salt solution is put into the softener through an opening provided for this purpose. The valves are arranged so that the salt water is flushed through the softener into the sewer. When the salt has all been washed out, the softener is again ready for use, and the valves can be set so that the water can flow through it. The usual time required to regenerate a softener is fifteen or twenty minutes.

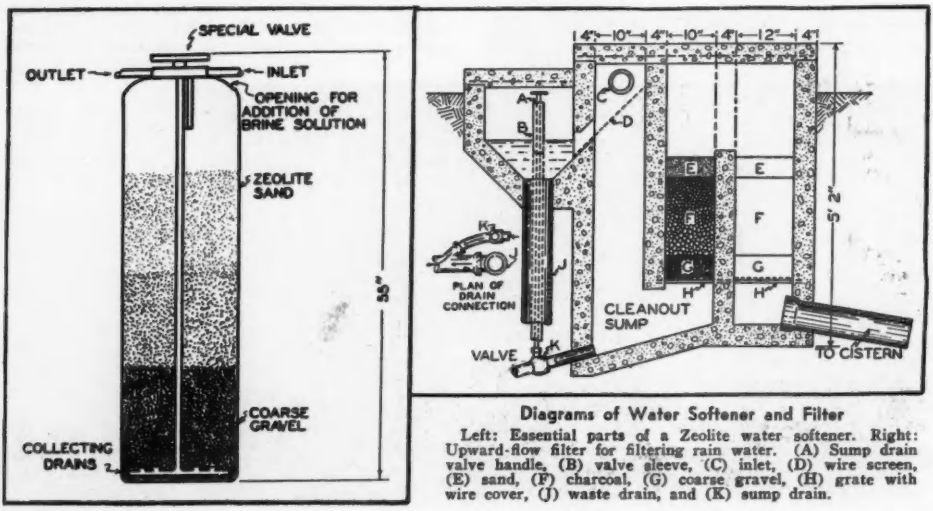
Minerals Removed by Softening

The water softened in this manner is as healthful as the hard water and may be used for drinking. In fact, the only difference between such soft water and the hard water is that, after softening, the soft water contains an equivalent amount of soda which has been exchanged for the lime or other mineral that has been removed.

The first cost of a water softener would probably be not more and might be considerably less than the cost of a cistern and filtering equipment unless the latter were constructed by the farmer himself. The cost of salt is very slight, since the normal requirement is not more than a pound of salt for each one hundred gallons of water softened.

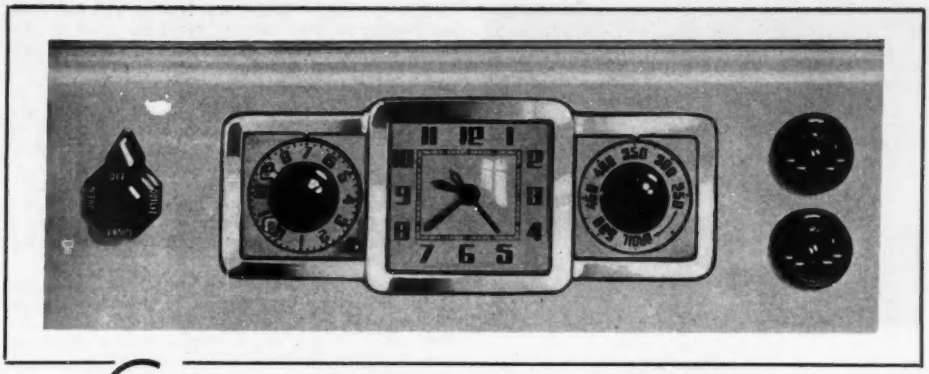
A point which should not be overlooked when a water softener is installed is to be sure that the hard water supply that is to be softened is under adequate pressure to force it through the softening material and have plenty of pressure on the soft water supply. The ordinary electrically-operated pump with automatic control with the pressure set at from twenty to forty pounds will usually give adequate pressure. A slightly higher pressure is desirable to provide a more rapid flow.

Where a good cistern is already available, with an adequate rainfall and roof area, and provided with a suitable filter, the purchase of a softener would hardly be justified. However, an electrically-operated pump would be needed. On the other hand, where a good well supply is available, a water softener will usually cost less than a cistern and filter and the second pumping unit is not needed. The final choice of equipment will depend on local conditions.



Diagrams of Water Softener and Filter

Left: Essential parts of a Zeolite water softener. Right: Upward-flow filter for filtering rain water. (A) Sump drain valve handle, (B) valve sleeve, (C) inlet, (D) wire screen, (E) sand, (F) charcoal, (G) coarse gravel, (H) grate with wire cover, (J) waste drain, and (K) sump drain.



COOKING BY DEGREES

By VERA B. MEACHAM

LAST spring a friend of mine promised her five year old son to take him to the circus this year. She spoke of it rashly enough, when the posters began to appear. Dick couldn't read the calendar to count the passing of the days till the circus should come, but he could keep up a steady stream of inquiries about it, and that he did.

"When is the circus coming, mother? What is week after next? When is next week?"

Above: The Minute Minder at the left of the clock times your cooking.

Below: Controlled heat for perfect cakes.

As circus day drew nearer, he was almost unbearably excited. The day before seemed to him—and his family—ages long. He stopped his play a hundred times to ask his mother earnestly when it would be tomorrow. As she put him to bed, she told him to shut his eyes quickly, for when he woke up it would be tomorrow.

It was barely sunrise, an early July sunrise when a subdued little voice whispered in her ear.

"Mother! Mother! Is this tomorrow?"

Not half awake, but realizing with a vast relief that circus day had come, she answered,

"Yes, dear. This is tomorrow."

There was an ecstatic little sigh, then silence, a long silence. She opened her eyes. Dick was still standing beside the bed, his eyes on the rosy glow of sunrise flooding the eastern windows. He looked puzzled.

"Humph," he said at last. "It looks to me an awful lot like today."

There are many things about electric cooking that make me feel sometimes as though I had caught up with tomorrow, though when I pinch myself a little, I have to admit that it can't be anything else but today.

One of them is the way electric ranges dole out heat, accurate measures of heat for any cooking job on hand. This I think is one of the great marvels of electric cooking. No fire, just flameless, odorless, uniform heat in heating units on top of the stove or in the oven.

This definitely controlled heat assumes greater and greater importance in modern cooking where accuracy is the slogan, the battle cry, the theme song. Strict accuracy that spurns the temptation to individuality and the adding of a dash of this and a handful of that, in favor of careful measurements of ingredients, exact measurements of time, and definite measurements of the heat.

It seems fair to insist that anyone who can read and can follow directions with reasonable accuracy can be a good cook with electricity for her fuel. The electric range gives her control of the one factor so often to blame for bad luck in cooking, the fire. We could always measure flour and sugar, we could measure baking powder and count

They baked for hours, but nobody had to tend the fire.

eggs. We could even tell time if we didn't forget the minute after we looked at the clock what time it was and go about murmuring distractedly.

"Now when did I put that bread in, was it ten minutes of eleven, or ten minutes after 'leven?"

Anyhow there was no good reason why we should not be able to time our cooking accurately. But measuring the heat on the old fashioned cook stove was simply guess work. Some folks were good fire builders and good guessers, and some folks weren't.

There is no guesswork about keeping a fire on an electric range.

The surface units are built so they will supply just the heat you need for the cooking you do on them, heat uniformly distributed across the burner. They are built so that, at a given voltage on the lines that carry the current, they will always produce the same exact amount of heat each time you turn them on. More than that, each burner is built to deliver three different heats, yours to select at the turn of a switch.

You turn a burner on high to bring a kettle of carrots to a boil. When it is boiling, you can turn the burner to low. It will still boil. Five or ten minutes before the end of the cooking time, you can turn the heat off entirely. The heat in the burner will finish the cooking.

Since a burner uses just one fourth as much current on low as it does on high, a thrifty person is constantly reminded to use this heat correctly. Any way, you know, if you stop to think about it, that after a food is boiling, you can't raise the temperature in that kettle any higher, nor hurry the cooking any faster. Leaving the burner on high, evaporates the water faster, wastes heat, and makes the kitchen warmer.

You can't turn down every fire at will. But with an electric range, you can do it, instantly, just by changing the switch to low. When you reduce the heat under the pan, you are free from pot watching, you cut down the cost of cooking, and you waste none of the heat warming the kitchen.

Moreover, on most electric ranges, the burners are built so they store up heat from those wires, enough of it so you can finish much of your cooking with the current turned off entirely. They will keep a cooking temperature 5-10, some of them 15-18 minutes after the current goes off. And so great is the accuracy of this measured heat that you can always depend on each burner being the same today as yesterday.

With a fire you can depend on, with lots of heat, moderate heat, or just a wee-handful of heat burning low under a sauce pan with cheese sauce simmering away on the stove, you can be surer that your potatoes won't burn, that you can make gravies, cream sauce, and puddings that won't get lumpy before you can turn around. So you can serve better meals with less waste of things that don't get eaten because they aren't just right, and you can do it without being tied to the stove by your apron strings either.

In case you are one of those folks who sometimes forget to watch the time, you will be interested to know that some electric ranges have a little device you can set to count the minutes of your cooking. Some of these minute minders, I believe, turn the

There is dinner in the oven though there's no one in the house.

current off under your potatoes when they are done. On others it rings a bell that calls you to come and turn off the current yourself, to take out the cake, or take up the corn.

Do you still know women who shush their families out of the kitchen and tiptoe about in whispers when they put a cake in the oven?

Electric Range Banishes Oven Watching

This summer I heard about a splendid cook down in Florida who sits herself down in front of the oven when she bakes a cake and stays there the whole time that cake is in the oven. Now and again she opens the door carefully and peeks in to make sure it is getting brown. After a while she begins sticking a straw into the cake at intervals to see if it is done. She can make marvelous cakes, but when she is baking them, she never gets out of sight of the range.

She is buying an electric range this fall. I suppose it is all connected up and going by now. She is going to find baking a very different matter in a stove that doesn't need watching.

For a good many years the temperatures for baking have been a part of most recipes. Accurate temperatures. Not "a hot oven," "a slow oven." The actual, accurate temperature, as definite as two cups of flour and the whites of three eggs.

To be sure the temperatures we find in recipes we cut out half a dozen years ago, are often not the temperatures recommended for the same pies and cakes today.

A year ago I would have thought it incredible, but yesterday I put an apple pie in a cold oven, set the regulator for 400 degrees, and turned on the

It was started in a cold oven.

switch of the lower heating element. I left the pie in about an hour and a quarter, and it was, without doubt, the best pie I ever made in my life. The under crust, was thoroughly done, and the top was crisp and flaky.

My pie was a success because a group of women working in the kitchens of a large range manufacturing company discovered that grand pies could be baked that way. Imagine having the hardihood to put a pie in a cold oven, an oven that would never get hotter than 400 degrees. But it works.

The trend of oven temperatures is down for many things. With an electric range this cooking revolution doesn't cause any consternation at all. You can have any temperature you want just by

(*Continued on page 22*)

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Some Interesting Results of HEATING BROODER FLOORS

By D. W. RICE

THREE hundred and fourteen heavy leghorn chicks were brooded electrically to the age of 6 weeks, from February 16th to March 30th, with a loss of only four chicks. The remaining 99% were then transferred to larger quarters. At the age of 7 weeks no further mortality had occurred; the birds averaged 1½ lbs. in weight and were in excellent condition.

The current consumed for this period of brooding was 693 Kwh. The cost per chick would have been approximately 40% less had the brooders been operated to capacity. Each frame will accommodate 250 chicks for 6 weeks or a total of 500. Only 314 chicks were brooded, however. The average outside temperature during the brooding period was 39 degrees F. Temperatures varied from 20 degrees F. to 62 degrees F.

An S-2 poultry sun lamp was used over only one pen of 157 chicks in order to obtain a comparison with the other like pen without any ultra-violet. The length of dosage was five hours per day. The consumption for this ultra-violet lamp was 36 Kwh for the six-week-period. Mr. Higinbotham states that the growth and feathering of the chicks in the pen which received ultra-violet were by far more advanced than those in the pen which did not receive it. As a result of his experience with ultra-violet he has ordered two S12 units for his laying houses and for use in future brooding.

The use of electric heat for brooding has not been generally accepted by the majority of poultrymen, due to the fear of high cost of operation, as well as the opinion that electric brooders would not furnish sufficient heat for early brooding. The above project was undertaken to disprove these statements.

Temperature Data Sought

Secondly, it was the purpose of the project to demonstrate that temperatures of 85 degrees to 90 degrees under the hover were sufficient for chicks up to one week old and from then on a constantly diminishing hover heat until 75 degrees was reached and maintained under the hover from two weeks of age until the end of the six-week period.

Third, it was the purpose of the test to show that cold room system of brooding was a healthy management system for baby chicks. It has been the writer's opinion that more chicks are lost every year from overheated brooders with no escape or change of temperature possible for the chicks than from any other cause. Temperature readings taken at intervals showed temperatures from 38 degrees to 60 degrees around the feeding areas, with the temperature under the hover at 90 to 80 degrees the first two weeks.

The chicks were divided into two groups of 157 each and placed on ½" wire mesh stretched on 2" x 4" frames, as shown in the illustration herewith. Heavy butcher paper was laid beneath the frames for droppings. To clean merely necessitated lifting the frame slightly and pulling out the old paper and renewing. It was thought that if a mesh smaller than ½" was used, cleaning difficulties might present themselves. It was interesting to see that no sore feet developed from the use of the ½" mesh wire as a floor. The final results obtained from this test are, no doubt, partially due to the elimination of contamination that may be present when chicks are raised on a solid floor.

One end of each frame was strung with 120' of lead-covered heating wire totalling 800 watts per frame. Droppings did not cling to the lead-covered elements and at the end of 6 weeks a slight brushing with a wire brush made them as clean as before. The lead covering around the heating wire

(*Continued on page* 19)

One-half inch wire mesh stretched on frames serves as a floor in this poultry house. The heating cable is strung beneath one end of the wire flooring of each section. Also note poultry sun lamp which Mr. Higinbotham says hastened the growth and feathering of this group of chicks.

ELECTRICAL HOUSEKEEPING

Conducted by GAIL MEREDITH

FOR THANKSGIVING DINNER

IF you are going to have duck for dinner Thanksgiving day you may like to garnish it thus with slices of orange with an almond sticking up in the center. The duck looks buttoned up with almonds,

too, doesn't it? Here is a piquant sauce to go with it.

Cumberland Sauce

1/3 cup orange juice
¼ cup lemon juice
1 cup powdered sugar
2 tablespoons currant jelly
Grated rind 1 orange
Grated rind 1 lemon
1 tablespoon grated horse radish

Beat thoroughly; heat and serve.

• • •

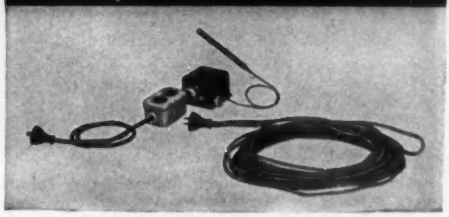
SUMMER KITCHENS

PERHAPS it did freeze a thin sheet of ice on the watering trough last night. Maybe the wind blows out of the north, a brisk and nipping gale. Even so this is no time to put by your plans for getting a good refrigerator, or to pull out the plug on the cord of the one you have, and to imagine you can get along without it till spring. Isn't it always summer in the kitchen, nowadays?

To have much of the food you give your family in the best condition you must keep it at an even temperature, above freezing and below 50 degrees—and the only place you can be sure of doing that is in a dependable refrigerator.

There is no use looking to the weather for help.

ANNOUNCING
THE NEW
G-E SOIL-HEATING KIT



The kit shown above consists of soil-heating cable and a thermostat, properly assembled for your convenient use. It is complete and portable, ready to be plugged immediately into any a-c outlet

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In fur coat time the kitchen is as warm as ever.

Folks who have run their fingers down column after column of weather reports for the whole United States tell us that there are just nineteen days in the course of a year when the temperature is exactly right to keep food safe.

If your cellar were as cold as it is outdoors, then you could only trust it with the job of refrigeration for nineteen days. And you would have to keep a steady eye on a thermometer to know which days those were, too. The back porch is even worse. If you live in the south it isn't cold enough; if you live in the north, it will be too cold. And wherever you live, you will always be fighting with wind, and dust and smoke for the food you store there.

With food prices climbing like Jack's beanstalk, none of us wants to waste food through bad management. Fresh food, cooked food, driblets of left overs all cost money and time and labor. They should be kept appetizing and wholesome for feeding the family. They can be with dependable year round refrigeration.

I suppose you have noticed that with some of the food in the basement, some of it on the pantry shelves, and some of it out on the back porch, rounding up a meal takes a good many steps, extra steps that consume time and strength you might more profitably spend on something you really want to do. With milk and butter, with eggs and meat, vegetables and fruit stored in a spick and span white cabinet right next your work table in the kitchen, you cut down on the meal mileage a good bit. There is a good deal of comfort in the convenience of an electric refrigerator.

Ready for an unexpected guest.

And you want to remember that this convenience is more than the saving of hurried steps. It affects much of the meal planning through making it possible to do up a lot of odd jobs ahead of time.

I don't mean you can start in some fine Tuesday morning here early in the month and get most of your Thanksgiving dinner. Not exactly that; but partly.

Perhaps the folks who are coming for Thanksgiving will be with you over Sunday, too, and there will be many meals to get on the table. Even as early as this, you might make up a batch of home made biscuit mixture and put it in the refrigerator in a covered jar or a bowl covered with waxed paper held firmly in place with a rubber band.

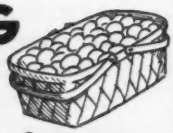
I don't know though. If you did, you would probably find so many uses for it that it would all be gone by the time Thanksgiving came, and you'd have to start over. You'll have to decide that for yourself, though. I will tell you how it is made.

Miss Ruth Chambers make this biscuit mixture for her cooking schools, schools she holds all over the country. Perhaps you have seen her do it if you are one of those alert housewives who watch for cooking schools. I have seen her measure out a couple of cups of it and turn it into biscuits, and cobblers, coffee cakes and meat pies just by adding a little water or milk. She says it is good for dumplings and muffins, for waffles and pancakes, too. Biscuit mixture:

8 cups flour	4 teaspoons salt
¼ cup baking powder	1½ cups lard

First Miss Chambers sifts the flour and measures

20 LAYING HENS



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it out. Then she sifts it again with the baking powder and salt. She cuts the lard into the flour with a wire dough blender. You know what they are, don't you? Loops of heavy wire strung horseshoe wise to a couple of pieces of metal that are bolted to a wooden handle like the handle on a chopping knife. As I was saying, she cuts the lard into the flour until the mixture has what she calls a "fine even crumb."

"That's all there is to it," she says. "Put it in a closed dish and keep it in the refrigerator. It will be ready anytime, and it will keep at least a month. It will yield five batches with two cups of the mixture in each batch."

So a pan of biscuit mixture in the refrigerator would not be a bad start for a meal, would it? Then there are refrigerator rolls made with yeast, that can be kept on hand for a week, anyway. There are cookies that are mixed up when you think of it and sliced off and baked when you want them. Pie crust can be mixed this morning for tomorrow's pies, or for pies a week ahead. Just keep it rolled in waxed paper—and keep it cold.

On this purely imaginary morning when we are assuming that you have nothing else to do but concoct nice things to eat for future meals, you could well make up a supply of salad dressings, boiled, French, and mayonnaise, for they do keep an incredibly long time in the refrigerator.

After that you can make a copule of quarts of white sauce and have it ready for cream soups, or for scalloped or au gratin dishes that will give eye and appetite appeal to a dinner in a hurry.

Even though there may be no cows on your farm, you can still have whipped cream in your salads or topping a dessert, from canned milk. Put a few cans of evaported milk in a kettle, cover them with cold water, and bring the water to a boil. When it has boiled five minutes, you can take the kettle off, take out the cans and cool them. If you will put a can into the refrigerator a little while before you want to use it, or if you can spare the room, if you will keep a couple of cans stored there, you can whip up the milk like cream.

If you like to have a pudding on hand, a rich, tasty pudding, that you can get ready while a strange automobile is coming up the lane, get a few cans of condensed milk—*condensed*, not evaporated, remember—and boil them for three hours. When the cans are cold, they can be stored until you are ready for them. When one is opened up, you can slide out a delicious carmel pudding all ready to slice and serve with a trimming of chopped nuts or a spoonful of entirely unnecessary whipped cream. If you are keeping one corner of a refrigerator shelf for emergencies, this can certainly deserves a place there.

I want to tell you about just one more thing out of all the countless possibilities there are for this getting meals in advance. That is a seven-minute icing you can make any time, put in the refrigerator and use when your need is great.

Comfort Icing

2½ cups white sugar (amount on damp day.)
½ to ¾ cups white corn syrup. (Use smaller amount on damp day.)
½ cup water
2 egg whites

This icing should be beaten in a bowl which holds at least 3 quarts.

Boil sugar, syrup and water together about one minute, then add 4 tablespoons of this syrup to the stiffly beaten egg whites, beating constantly. Cook remainder of this syrup to firm ball stage (242 degrees) then add to egg white mixture and beat until it loses its shine and holds its shape. The icing may be used immediately or stored

(*Continued on page* 21)

BAKE IT FOR CHRISTMAS

I KNOW a woman who baked her Christmas fruitcakes last June. Now, wasn't that forehanded? We can't make our Christmas plum puddings, the ones for the family, and the gifts to the family's friends, a single day earlier. And if we are wise, we aren't going to let it go on too much later.

So much other work piles up around holiday time. And I always think fruit cakes and plum puddings are not things you can hurry.

Make An Excellent Gift

The lovely lady in the picture baked her plum puddings right in these glass baking dishes, and as you can see, she is using them, dishes, puddings and all for gifts. The puddings were made from the

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following recipe, one developed by Miss Lucy Maltby in the kitchen of a great manufacturing company.

Honey Plum Pudding

1½ cups seedless raisins	1 egg
½ cup citron	¼ cup flour
½ cup dates	1 teaspoon nutmeg
1 cup pecans	2 teaspoons cinnamon
½ cup oatmeal (measure after cooking)	1 teaspoon allspice
½ cup bran	½ teaspoon soda
½ cup current jelly	1 cup honey

Chop fruits and nuts coarsely; dredge with ¼ cup of the flour. Combine oatmeal, bran, honey, jelly and well beaten egg. Mix. Sift together remainder of flour, spices and soda. Add flour mixture, through a sifter, to the egg mixture. Beat well. Stir in dredged fruits and nuts. Pour into well greased dishes, put covers on, and bake in a 250 degree oven for two and a half hours.

Not High Hat

City Friend: "How is the boy since he came back from college?"

Farmer John: "Fine! Still treats us as equals."

A Safe Bet

Mrs. Brookline: "I understand the Eskimos are very keen domino players, and sometimes bet heavily, even putting up their wives and losing them."

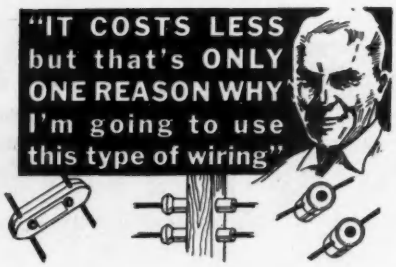
Mr. Brookline: "Well, I'll bet there are a lot of good losers among the Eskimos."

Standing Room Only

He: "This dance hall is surely crowded."

She: "I'll say so. Half an hour ago I fainted and had to dance around four times before I could fall."

—*M.I.T. VooDoo.*



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Conducted by JEROME J. HENRY

Leslie Howard Signed for Radio Series

LESLIE HOWARD, one of the most romantic and brilliant figures on the modern stage and screen, has begun his first radio series. Early in October he began starring over an extensive net-

Beetle's and Bottle's notion of an ideal broadcast is shown as Phil Baker labors at the microphone under a slight handicap. The stooges are cast as backseat drivers as Phil packs a band of singers and musicians into an imaginary automobile for a hilarious tour of the country via CBS stations.

work of the Columbia Broadcasting System every Sunday evening.

The handsome actor brings to radio the experience of a remarkable career. He came to America from his native London in 1920. Prior to that time he had pursued a short career on the English stage after his discharge from the British army at the close of the World War. Before the war and after leaving college he had worked as a bank clerk, forsaking his original love of dramatics. The post-war era of reconstruction fortunately turned him back to drama. His talents bore him to international stardom within a decade.

• • •

"Cornbelt Derby" is Scene of Thrilling Program

THE National Corn-husking contest which, as a sporting event, has no equal when it comes to widespread interest, will again be broadcast direct from the contest field during the National Farm and Home Hour at 12:30 p. m., Eastern Standard time, November 8.

The classic of the corn fields will be staged in Indiana this year under a plan of rotating the event from cornbelt state to cornbelt state year after year. Cornhusking is a sport which has its practical side. Once a farm drudge, husking corn was transformed by hundreds of young farmer

athletes into a game of skill and endurance. Each year county contests are staged in nine states to find the fastest huskers, who then compete in state contests in order that the two best huskers from each state may battle for the national championship.

As the huskers and their wagons line up at the starting line, Farm and Home Hour microphones will be on hand to bring the details to listeners all over the country. The broadcast has been arranged by William E. Drips, NBC director of agriculture, formerly an editor of Wallaces' Farmer and Iowa Homestead, and an expert on cornhusking, who is responsible for dubbing the main event, the "Cornbelt Derby." For years Drips arranged the Iowa contests, originated by the Secretary of Agriculture Henry A. Wallace, to settle an argument between two huskers whom he met on a field trip in his native state.

• • •

Buck Rogers Program in Third Year

"BUCK ROGERS in the 25th century" takes listeners on fantastic trips more than 500 years into the future during broadcasts over CBS stations.

E. R. Johnstone, who writes the scripts for the program, says he won't really feel satisfied until he's got Buck into the 26th century. By that time he'll probably invent an automatic writing machine that will turn out finished scripts when a button is pressed. So far he has introduced such simple little gadgets as a mechanical mole that melts everything in front of it, and a super rocket ship which may travel with the speed of light.

The whole thing started with a soldier who had served in the American army during the war. When it was over he worked in a mine. One day a terrific explosion buried him deep in the earth, but a strange gas filtering through a crack kept him in suspended animation for 500 years.

The soldier was none other than Buck Rogers. When he awoke in a strange new world, he was discovered by a beautiful girl, Wilma Deering, who helped Buck understand the 25th century universe and all its inventions for overcoming space and time. At present Buck and Wilma are exploring the lower regions of the earth.

Water for Poultry

(*Continued from page* 8)

farm for the past two years have averaged less than one cent per day for each 100 birds during the coldest part of the winter.

Certain mistakes observed by the writer may be avoided in selecting electric heaters for fountains. Fountain warmers should be as wide as the widest part of the fountain and trough, or freezing may occur in the trough. A circular band of metal may be required from the heater to the top of trough to add protection. Immersion heaters are not likely to be satisfactory in float fed fountains with troughs, for water will freeze around the edge of the trough in cold weather.

A separate water heater line may be installed in a poultry house, already wired for lighting purposes, by merely extending a third wire, provided a single pole switch is used on the lighting circuit. The third wire is connected to the live wire side of the lighting circuit ahead of the switch and it forms a separate circuit for the heaters with the neutral or grounded wire of the lighting circuit.

Heating Brooder Floors

(*Continued from page* 14)

seemed to give ample protection and distributed the heat at low temperature. One electric thermostat controlled the temperature of the two brooders.

The hover portion was constructed by merely tacking flannel around the edges of a piece of insulated board. A small light was used under the hover for attraction of the chicks. The hover was suspended over the heating cable by a rope on pulleys so that it could be adjusted for any height.

The cost of constructing these two frames capable of caring for 250 chicks per frame until 6 weeks of age, complete with electrical equipment and hovers, excluding the 2. x 4. material was as listed below:

½" Wire Mesh	$ 5.25
240' Lead-covered Heating Cable	16.80
1 Thermostat	8.25
Misc. Wiring, Material and Hardware	2.75
Total	$33.05

Both Mr. and Mrs. Higinbotham were away from their home five days of every week at their places of business and no attention paid to the chicks other than feeding morning and evening. Electric temperature control was, therefore, the sole means of maintaining proper heat conditions, regardless of changes in weather conditions during their absence.

The Finishing Touches

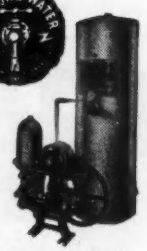
"Mother," said a little boy after coming from the farm, "I saw a man who makes horses."

"Are you sure?" asked the mother.

"Yes," he replied. "He had a horse nearly finished when I saw him; he was just nailing on his back feet."

—*Our Dumb Animals.*

AN INVESTMENT THAT PAYS DIVIDENDS EVERY 365 DAY IN THE YEAR



Think what the purchase of a Goulds Water System means to you every day in the year. Back breaking pumping is ended once and for all. At the turn of a spigot—you have abundant fresh water in the kitchen, the bathroom, the barn, the stables, the henhouse—or wherever you want it every day in the year.

When you install a Goulds, you have the satisfaction of knowing you have the best money can buy—despite the high quality, Goulds Pumps are surprisingly low in cost. Your request will bring you full details on our complete line of shallow and deep well systems. Goulds Pumps, Inc., 340 Fall Street, Seneca Falls, N. Y.

Goulds Shallow Well Water System-C-2542. 250 gallons per hour capacity. Price $67.00

GOULDS

Questions and Answers

Conducted by H. J. GALLAGHER

Cost of Operating Battery Charger

Question: *How much electricity will it take per hour to run a 115 V 2.5 amp. battery charger.*

WM. DOUTHETT, JR.
Jamestown, Pa.

Answer: Volts, electric pressure, multiplied by amperes, rate of flow of energy, equals the watts, the amount consumed and registered on the watt hours meter as kw-hrs.

115 x 2.5 = 287½ watts that the charger will consume in one hour. To register one kw.-hr. on the meter, charger will have to operate 3.5 hours.

Converting D. C. Motor to A. C.

Question: *Have you the directions for changing a Ford starting motor to work on 110 V 60 C A. C.? I like to experiment and although it does use more current it will satisfy me. I believe it was published several months ago in* ELECTRICITY ON THE FARM.

D. L.

Answer: To the best of my knowledge, ELECTRICITY ON THE FARM has never published directions on the method of converting D. C. motors into A. C. motors because the practice is too impractical to encourage. In addition the operation is too complicated to be readily followed from a brief magazine description.

I suggest you visit a local motor repair shop for the information you desire.

Electrical Bird Trap Dangerous

Question: *Do you know of any electrical device that would kill sparrows in or around farm buildings? If there is such a thing we would appreciate knowing the name of the manufacturer.*

J. W. CROWE,
Boise, Idaho.

Answer: I know of no electric device that has been successfully used for the killing of sparrows. It would seem that such a device would possess some dangerous features. In the first place, a sparrow is naturally well insulated and it would require quite a shock to kill it instantly. Should the body of the bird or any other resistance become established between the ground and the conductor the result would be a fire hazard in or near farm buildings. Poisoned bait is the safer method to employ.

Converting Generator to A.C. Motor

Question: *Will you tell me how to change a Ford model T generator to an A.C. motor? Can I operate it at only one speed or is its speed variable? Does a 1/30 h.p. motor, 4,000 revolutions per minute, have sufficient power to turn an ordinary cheap blacksmith drill?*

L. D. W.,
Wooster, Ohio

Answer: Changing a Ford generator into an A.C. motor is too impractical to warrant consideration, it is practically the same as building an entire A.C. motor. The better method would be to sell the generator and buy an A.C. motor, or save the generator and use it in combination with an A.C. motor for charging the car battery.

A 1/30 h.p. motor would be too small to satisfactorily operate a drill for metal work.

Watt Hours Per Disc Revolution

Question: *I will appreciate it very much if you will give me the following information: How to determine the watt hours per disc revolution of an electric meter as mentioned in your article "Cost of Pumping" on page 19 of June, 1935, issue of* ELECTRICITY ON THE FARM. *In this item you refer the inquirer to the December, 1932, issue for explanation, but I do not have this issue and I have always been anxious to know how to figure the wattage by the number of disc revolutions.*

Answer: Some of the meter manufacturing companies state on the meter name plate the watt hours per disc revolution. It will read like this: W. H. Per Disc Rev. 1/3, which means that every time the meter disc makes one complete revolution, 1/3 of one watt hour of energy has been consumed. To use this information in determining the amount of energy used by an appliance, count the meter disc revolutions for one minute when the appliance is the only resistance connected to the service. Multiply the disc revolutions per minute by 60 to get the number of revolutions per hour. Multiply the product by the meter rating, in this case by 1/3. The result is the number of watts per hour used by the appliance.

Example: A resistance causing the meter disc

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SUPER-SPEED ELECTRIC RANGE UNITS

Don't Blame Electric Cooking Because Your Range Is Slow—
replace the outworn units with speedy, long-lived, easily-cleaned Chromalox Units—and see the difference. They will fit your range. Ask your power company or dealer, or write us for details.

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MORE WINTER EGGS
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Will be gathered when drinking water is protected against freezing.

TRUMBULL Automatic ELECTRIC Water Warmer

20% increased egg production reported at egg-a-day cost to operate. Current used only as needed. At your dealer's or send us $3.00, and we will mail you Water Warmer, postpaid. Guaranteed.
TRUMBULL ELECTRIC MFG. CO.,
1012 Woodford Ave., Plainville, Conn.

A GENERAL ELECTRIC ORGANIZATION

to revolve 20 times a minute would be rated as a 400 watt unit: 20 x 60 x 1/3 = 400.

To determine the W. H. Per Disc Rev. on unmarked meters, proceed as follows:

1. Check meter disc to be sure it is motionless.
2. Connect a known resistance, as four 100 watt lamps.
3. Count the disc revolutions for one minute with only the four 100 lamps using energy. Multiply by 60 for rev. per hour.
4. Divide the disc rev. per hour by the wattage of the resistance, the result is the W. H. Per Disc Revolutions.

Example: Four 100 watts as resistance, meter revolves 20 per second or 1200 per hour
1200 ÷ 400 = 1/3 as the W. H. Per Disc Rev.

Summer Kitchens

(*Continued from page* 17)

in a covered jar. It keeps 4-6 weeks in a refrigerator. When putting the icing on a cake, add a few drops of hot water so the icing will be just thin enough to spread.

So you see you not only put safeguards around your foods when when you store them in a good mechanical refrigerator, you not only save yourself countless steps, but you have a chance to work out ways of saving your time, and feeding your family better with less effort. Then there is an additional luxury in being able to keep on hand plenty of food so you will always be ready for emergencies when they emerge. You can rest easy about it, too. It will keep well, whatever the weather. Though it may be summer in the kitchen, it is winter all year round in the refrigerator.

CLIP COWS *this easy, better way*

STEWART
ELECTRIC
Clipmaster

Clipped cows give cleaner milk, better milk with lower bacteria count. Quickly cleaned by simply wiping with damp cloth. Good dairy practice requires cow clipping. Some states demand it. Clipmaster is the fastest, coolest, easiest-to-use clipper ever made. Smaller **EASY-GRIP** handpiece only 2 inches thick contains **powerful** motor. Perfect balance. Air-cooled. Ball-bearing. Only $16.95 for 110 volts AC or DC. Other voltages $2.00 additional. Slightly higher West of Denver. At your dealer's or send $1.00. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand-power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Co., 5524 Roosevelt Road, Chicago, Ill. 45 *Years Making Quality Products.*

Free Information

How easily and reasonably electricity can be applied to make farm life more comfortable and profitable is simple to seek.

Just list on the coupon below the appliances about which you'd like complete information and mail it to us. We'll see that manufacturers send you complete details at no cost and without obligation—and you can be the judge.

Please give our advertisers first opportunity to answer your questions. They are particularly well equipped to serve you.

Listed below are the leading and most popular applications for electricity on the farm:

Automatic Water Systems
Water Heaters
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Table Cooking Appliances
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Tea Kettles
Milking Machines
Cream Separators
Drinking Fountain Warmers
Ultraviolet Light
Woodworking Machinery
Ensilage Cutters
Stationary Spray Plants
Burglar Alarms
Soil Heating Equipment
Insect Traps and Screens
Electric Fencing
Light for Plant Growth
Electric Lawn Mowers
Septic Tanks
Vegetable Washers
Ranges
Refrigerators
Dishwashers
Flat Irons
Clocks
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Churns
Bottle Washers
Dairy Sterilizers
Animal Clippers
Incubators
Brooders
Time Switches
Thermostats
Soldering Irons
Tool Grinders
Drills
Paint Sprayers
Motors
Feed Grinders
Corn Shellers
Hay Hoists
Feed Mixers
Ventilators
Radios
Sheep Shears
Floodlights
Bunch Tyers

FREE INFORMATION COUPON

Electricity on the Farm
24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying. .....

My name is .....

Address .....

.....

I get electricity from .....

.....11-35

What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New ork, N. Y.*

General-Purpose Automatic Time Switch

Stimulating winter egg production by the use of electric illumination is a common practice among many farmers and commercial poultrymen. Others have hesitated to adopt the practice because of the necessity for early rising to turn on the lights. This objection is easily overcome by the use of a time switch where lights are used only in the morn-in.

Two new general-purpose automatic time switches are recently announced by a well-known manufacturer of electrical equipment. These are both driven through a spur-gear train by an electric motor and are designed for 115 or 230-volt a.c. circuits. One type of switch is designed for indoor use only, while the second is for either indoor or outdoor use. Current rating is 40 amperes per contact, thus a triple-pole switch will handle 120 amperes, split load. The switches are available in six forms: Single-throw—single-, double-, and triple-pole; double throw—single-, and double-pole; and two circuit with separate break. Quick-make and quick-break silver contacts are standard on all switches.

Electric Dairy Water Heater

Experimental work by dairy bacteriologists have shown that hot water of at least 165 degrees F. is necessary for proper cleaning of milking machines. Other utensils likewise require a supply of hot water for adequate cleaning. An electric water heater has been found very satisfactory for heating this supply of water, for it can usually be turned on when the milking machine is started and the required water is hot when the milking has been comleted.

Plans for an inexpensive hot water heater of 7 to 8 gallons capacity have been developed by and are furnished generally to local manufacturers by one of the western power companies. Specifications call for a 230-volt, 1,000-watt immersion type heating element which is screwed into a one-inch galvanized pipe coupling located just above the bottom of the tank. Water is drawn out of the heater through a ½-inch brass faucet located 4 inches above the bottom. The inside diameter is 13 inches with a wall thickness of one inch, which includes an inside lining of not lighter than 14-ounce tinned copper, rock wool insulation and an outside cover of galvanized iron which is not to be ligher than 27 gauge. Overall height of the heater is 16½ inches.

Cooking by Degrees

(*Continued from page* 13)

setting the regulator and turning the switch. This thermostatic control is so accurate that you are quite safe to leave it the job of watching the fire. You can be sure of an even heat throughout your baking.

Because electric heat can be so exactly and safely controlled, you can leave the job of turning it off and on to a clock. There are many foods you can prepare in the morning and put in the oven for your dinner. Set the range clock for the time you want dinner to start cooking, and it will turn the current on for you. You may be over in the next county. That will not make any difference. Your fire will not burn too high, nor will it die down and go out. You will have an accurate measure of heat, enough to keep the temperature of the oven at the point you have indicated by setting the thermostat, all the while your dinner is cooking.

If you set the clock to do so, it will turn the current off whether you are home or not. Dinner will be hot when you get there.

These are cooking miracles, goodness knows. And we can expect new marvels tomorrow. But it is highly probable that when tomorrow comes, we will be ready to accept them, too, for each tomorrow, after it arrives, looks quite a lot like today.

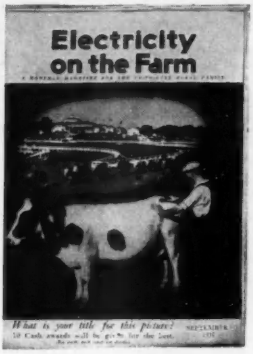
CLASSIFIED ADVERTISING

ELECTRIC POULTRY EQUIPMENT SPECIALISTS—The LYON ELECTRIC COMPANY offers equipment that has been proven practical by years of service on poultry farms in all sections of the country. The LYON line includes — BROODERS — DRINKING FOUNTAIN WARMERS — ALARMS (Burglar, Fire, Temperature, Power-Off)—TIME SWITCHES for poultry house lighting—HEATING ELEMENTS and equipment for home-made incubators and brooders. Write for complete electrical catalog and brooding data. LYON ELECTRIC CO., San Diego, Calif.

The PARAGON POULTRY TIME SWITCH is scientifically designed and approved by state universities. It provides automatic control both morning and night and DIMS THE LIGHT AT NIGHT to allow the hens to return to roost. Low price and UNCONDITIONALLY GUARANTEED. Write for full information today. PARAGON ELECTRIC COMPANY. Van Buren and Dearborn Sts., Chicago, Ill.

INCREASE EGG PRODUCTION when prices are high by automatically lighting your chicken house with a DA-LITE TIME SWITCH. Write today and find out how you can make big money on eggs. AUTOMATIC ELECTRIC MFG. CO., Mankato, Minn.

COVER TITLE CONTEST



SEPTEMBER COVER

RULES
November Title Contest

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief — the shorter the better—and short slogans will be given preferences over rhymes.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before December 1st.

Winning names and titles will be announced in the January issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

$20 First Prize for September Cover

"Electricity—a short cut to first prize."

E. H. MANWARING,
R.F.D. 1, Portville, N. Y.

Nine $2.00 Prizes for September

"Electricity—the blue-ribbon short cut."
EUNICE M. KEEFE, Box 637, Sidney, Neb.

"Well bred, well fed and electrically clipped.
To win first prize, Bossy's well equipped."
JENNIE McFARLAND, R.F.D. 4, Olathe, Kan.

"Preparing to win with an 'electrical trim'."
EILEEN GREEN, R.F.D. 5, Box 55, Springfield, Ill.

"Electrical grooming for 'Fair'."
MRS. HENRY SCHAEFFER, Box 43, Schoharie, N. Y.

"No worry—no hurry, to get to the Fair
With electric clippers to trim Bossy's hair."
MRS. L. F. BECKENHAUER, R.F.D. 1, Montesano, Wash.

"To bring in 'fair' prizes and profits with speed,
The electric clipper is what you need."
MRS. CHARLES CAMPBELL, R.F.D. 5, Dansville, N. Y.

"Groomed with an electric clipper this cow is
on a fair-way to win a prize."
RUTH E. BARDO, R.F.D. 2, Jersey Shore, Pa.

"Electrically clipped for the championship."
MRS. HALL A. POLLARD, R.F.D. 2, Nehawka, Nebr.

"Clipping his cow the electric way,
He dreams of the prize on State Fair day."
MARY M. BURNS, R.F.D., Manchester, Conn.

My title for the Front Cover picture on ELECTRICITY ON THE FARM for November is

.....

.....

(a) Have you an Electric Water Pump? If so, what make? .....

What plumbing fixtures in kitchen? .....

in bathroom? .....

.....

My name is ..... *R.F.D.* .....

Post Office ..... *County* ..... *State* 11-35

MR. FARMER:

YOU DON'T HAVE TO

WAIT FOR

ELECTRIC SERVICE

The Nebraska Power Company and the Citizens Power and Light Company recently announced SWEEPING REDUCTIONS in farm electric service rates—and that means CHEAP ELECTRICITY for YOU! Cheap electricity to do your hard work, in the yard and in the house—to pump water, grind feed, preserve your foods, cook your meals and, best of all, TO LIGHT YOUR HOME AND YARD. Electricity on the farm is the greatest labor-saver, health-saver, MONEY-SAVER yet invented!

LOWER FARM RATES FOR YOU

And now, owing to the new farm rate reductions which enable you to use far more electricity for your money, THE WAY IS OPEN TO YOU to benefit by employing this wonderful electrical servant. The reductions apply in YOUR region!

We offer you a service of ESTABLISHED DEPENDABILITY. The Nebraska Power Company and the Citizens Power and Light Company have been in the business for years. We have learned and put in practice the fundamentals of good electric service just as the farmer knows the fundamentals of good farming. We know how to serve you best.

INQUIRE NOW

WAIT NO LONGER—Electricity is cheaper now than ever before. The opportunity of electric power at low cost is knocking AT YOUR DOOR NOW.

ACT TODAY! Ask your local office for further information, or write to the Company.

Nebraska Power Co.
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